

## Spurling, Norman

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**From:** Spurling, Norman  
**Sent:** Wednesday, September 17, 2014 8:27 AM  
**To:** Miller, Robert  
**Subject:** RE: USGS

Thanks, Bob. I've printed out the 3<sup>rd</sup> quarter 2013 too and it has a strychnine case with 18 doves in TX.

Norman Spurling  
 6(a)(2) Coordination and Analysis  
 US EPA, OCSPP, OPP, ITRMD, ISB  
 703-305-5835

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**From:** Miller, Robert  
**Sent:** Wednesday, September 17, 2014 7:00 AM  
**To:** Spurling, Norman  
**Cc:** Mastrota, Nicholas  
**Subject:** USGS

Hi Norman,

Below are links to recent USGS quarterly incident reports.

[http://www.nwhc.usgs.gov/publications/quarterly\\_reports/2014\\_qtr\\_1.jsp](http://www.nwhc.usgs.gov/publications/quarterly_reports/2014_qtr_1.jsp)

[http://www.nwhc.usgs.gov/publications/quarterly\\_reports/2013\\_qtr\\_4.jsp](http://www.nwhc.usgs.gov/publications/quarterly_reports/2013_qtr_4.jsp)

[http://www.nwhc.usgs.gov/publications/quarterly\\_reports/2013\\_qtr\\_2.jsp](http://www.nwhc.usgs.gov/publications/quarterly_reports/2013_qtr_2.jsp)

[http://www.nwhc.usgs.gov/publications/quarterly\\_reports/2013\\_qtr\\_1.jsp](http://www.nwhc.usgs.gov/publications/quarterly_reports/2013_qtr_1.jsp)

Bob

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## National Wildlife Health Center

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### USGS National Wildlife Health Center Quarterly Wildlife Mortality Report January 2014 to March 2014

Reported State	Location	Dates <sup>A</sup>	Species	Mortality <sup>B</sup>	Diagnosis <sup>C</sup>	Laboratory <sup>D</sup>
AR	Hot Springs	03/06/14 - 03/06/14	Cedar Waxwing	10 (e)	Trauma	SCW
AR	Little Rock	02/19/14 - 03/15/14	Brazilian Free-tailed Bat	110 (e)	Undetermined	NW
AR	Marion County	01/12/14 - 04/15/14	Northern Long-Eared Bat	5	Fungal Infection: white-nose syndrome	NW
AZ	Mohave County	01/25/14 - 01/28/14	Eurasian Collared Dove	7 (e)	Viral Infection: Avian Paramyxovirus 1	NW
AZ	Scottsdale	01/15/14 - 01/20/14	Unidentified Pigeon, Unidentified Dove, Great-tailed Grackle, Mourning Dove, Inca Dove	18 (e)	Toxicosis: strychnine	NW
CA	Clear Lake	01/15/14 - 02/20/14	Ruddy Duck, American Coot	60 (e)	Avian cholera suspect	NON
CA	Forestville	01/03/14 - 02/14/14	Varied Thrush	9	Aspergillosis	CAF
CA	Mendota Wildlife Area	02/03/14 - 03/10/14	Unidentified Gull	15 (e)	Undetermined	CAF
CA	Multiple counties	02/09/14 -ongoing	Mourning Dove	108 (e)	Parasitism: trichomoniasis suspect	NON
CA	Pajaro River	03/01/14 - 03/03/14	American Coot	138	Open	NW
CA	Palomar Mountains	01/09/14 - 02/12/14	Band-tailed Pigeon	200 (e)	Parasitism: trichomoniasis	CFG
CA	Pocket Canal	03/29/14 - 05/12/14	Mallard	40 (e)	Avian cholera	CAF
CA	Point Reyes National Seashore	03/21/14 - 04/15/14	Rough-skinned Newt	89	Viral Infection: Ranavirus suspect	NW
CA	South Lake Tahoe			32	Undetermined	CAF

		01/27/14 - 01/28/14	White-crowned Sparrow, Golden-crowned Sparrow				
CA	South Lake Tahoe	01/28/14 - 01/28/14	Brewer's Blackbird	12 (e)	Toxicosis: strychnine	CAF	002
CA	Tule Lake NWR	02/11/14 - 04/15/14	Lesser Snow Goose, American Wigeon, Ross' Goose, Northern Pintail, Greater White-fronted Goose	3500 (e)	Avian cholera	NW	
CA	Wiser WMA; Sonny Bono Salton Sea NWR	02/25/14 - 03/13/14	Double-crested Cormorant	50 (e)	Avian cholera	NW	
GA	Glynn County	01/23/14 - 01/23/14	Eastern Brown Pelican	7	Emaciation: starvation suspect	SCW	
GA	Rabun County	03/04/14 - 04/15/14	Eastern Pipistrelle (Tri-colored) Bat	40 (e)	Fungal Infection: white-nose syndrome	SCW	
GA	Stephens County	02/03/14 - 02/03/14	American Crow, Canada Goose, Field Sparrow, Unidentified Crow, Turkey (Wild)	18	Toxicosis: Famphur	SCW	
HI	Hawaiian Islands	02/01/14 -ongoing	Collector Urchin	***	Open	NW	
IA	Browns Lake; Snyder Bend	03/01/14 - 03/18/14	Mallard, Unidentified Avian, Canada Goose, American Coot, Green-winged Teal	130 (e)	Avian cholera	NW	
IA	Riverton WMA	03/10/14 - 03/25/14	Lesser Snow Goose	75 (e)	Avian cholera	NW	
ID	Fort Boise WMA	02/24/14 - 04/09/14	Lesser Snow Goose, Greater Snow Goose, Ring-necked Duck, Unidentified Scaup, Greater White-fronted Goose	400 (e)	Avian cholera suspect	ID	
KS	Lovewell Reservoir	02/15/14 - 03/01/14	Mallard	150 (e)	Avian cholera	SCW	
KS	Montgomery County	01/01/14 - 01/01/14	Red-winged Blackbird	12 (e)	Trauma	NW	
LA	Avoyelles Parish	01/09/14 - 01/09/14	Wood Duck, Northern Pintail	20 (e)	Undetermined	SCW	
LA	Jefferson Davis Parish	01/03/14 - 01/03/14	Brown-headed Cowbird	250 (e)	Undetermined	SCW	
LA	Near Bayou Black		American Coot	200 (e)	Avian cholera	NW	

		02/15/14 - 02/20/14				
MD/VA	Cobb Island, MD; Trent Hall Creek, MD; Popes Creek, VA	02/04/14 - 02/12/14	Ruddy Duck, Double-crested Cormorant	125 (e)	Emaciation	MDA, NW
MD	Kent Narrows Bridge	02/09/14 - 02/09/14	Unidentified Blackbird	100 (e)	Trauma suspect	NON
MD	Oxford Marina	02/04/14 - 02/05/14	Ruddy Duck, Redhead Duck, Lesser Scaup, Canvasback	60 (e)	Emaciation	MDA, NW
MI	Alcona County	01/02/14 - 01/02/14	Mallard	18	Aspergillosis	MI
MI	Detroit and Huron Rivers, Gibraltar	02/21/14 - 03/19/14	Mute Swan, Canvasback, Unidentified Scaup, Tundra Swan, Common Merganser	415 (e)	Starvation	MI
MI	Keweenaw County	**** - 04/28/14	Little Brown Bat	50 (e)	Fungal infection: white- nose syndrome	MI
MI	Lake Macatawa	03/29/14 - 04/15/14	Common Merganser, Common Goldeneye, Double- crested Cormorant	21 (e)	Starvation suspect	NON
MI	Ludington	03/10/14 - 04/01/14	Common Goldeneye, Long- Tailed Duck, White- winged Scoter, Red -breasted Merganser	300 (e)	Starvation	MI
MI	Muskegon	02/22/14 - 04/15/14	Greater Scaup	15 (e)	Starvation	MI
MI	Muskegon	03/07/14 - 04/15/14	Greater Scaup, White-winged Scoter	20 (e)	Starvation	MI
MI	Muskegon Lake Channel	03/15/14 - 04/15/14	Red-breasted Merganser, Unidentified Scaup, White-winged Scoter, Greater Scaup	160 (e)	Starvation suspect	NON
MI	Pigeon Lake	02/08/14 - 04/15/14	White-winged Scoter, Red- breasted Merganser, Long- Tailed Duck, Mute Swan, Horned Grebe	36 (e)	Starvation	MI
MI	Sleeping Bear Dunes National Lakeshore	01/15/14 - 04/15/14	Unidentified Duck, White-winged Scoter, Long-Tailed Duck, Double-	96	Starvation suspect	NON

			crested Cormorant, Unidentified Passerine			
MI	Traverse City	02/01/14 - 04/15/14	Unidentified Waterfowl, Greater Scaup, Red- breasted Merganser, Mute Swan, White- winged Scoter	200 (e)	Starvation	MI
MO	Columbia	03/09/14 - 03/13/14	Common Grackle	5	Trauma	SCW
MO	Iron County	02/26/14 - 04/15/14	Northern Long- Eared Bat	9 (e)	Fungal Infection: white- nose syndrome	NW
MS	Panola County	01/24/14 - 01/26/14	Common Grackle, Brown-headed Cowbird	1000 (e)	Toxicosis suspect	NW
MT	Freezeout Lake	01/28/14 - 01/29/14	Mallard	16	Trauma	NW
NE	Johnson & Funk WPAs	03/07/14 - 04/05/14	Snow Goose, Canada Goose, Mallard, Northern Pintail, American Wigeon	563	Avian cholera	NW
NE	Platte River	01/13/14 - 01/30/14	Mallard	105 (e)	Avian cholera	NW
NJ	Bridgeton	01/15/14 - 02/24/14	Mourning Dove, Northern Mockingbird, Red- winged Blackbird, Common Grackle, Unidentified Passerine	25 (e)	Toxicosis: carbon monoxide suspect	NW
NY	Dunkirk	02/01/14 - 04/15/14	Red-breasted Merganser, American Coot, Greater Scaup, Mallard	1500 (e)	Emaciation: starvation suspect	NW, NY
NY	Irondequoit	01/15/14 - 04/15/14	Red-breasted Merganser	***	Emaciation: starvation suspect	NY
OH	Cold Creek	02/19/14 - 02/21/14	Red-breasted Merganser, Canvasback, Canada Goose, Mute Swan, American Black Duck	20	Emaciation: starvation suspect	NW
OR	Staats Lake	03/02/14 - 04/30/14	Cackling Goose, Herring Gull, Mew Gull	50 (e)	Aspergillosis	OR
OR	Summer Lake Wildlife Area	02/25/14 - 03/07/14	Lesser Snow Goose	100 (e)	Avian cholera	OR

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OR	Umatilla NWR; Columbia River	01/01/14 - 01/02/14	American Crow	100 (e)	Undetermined	NW
PA	Conneaut Lake	03/03/14 - 03/03/14	American Coot, Redhead Duck	15 (e)	Emaciation: starvation suspect	NW
PA	New Danville	03/19/14 - 03/19/14	Common Grackle	15 (e)	Toxicosis: chlorpyrifos	NW
SD	Huron	03/02/14 - 03/04/14	American Robin	24 (e)	Emaciation: starvation	NW
TX	Milano	03/02/14 - 03/11/14	Brazilian Free-tailed Bat	123 (e)	Emaciation: starvation suspect	NW
TX	Vidor	03/20/14 - 04/08/14	Northern Cardinal	35 (e)	Salmonellosis	NW
VA	Surry County	01/15/14 - 02/25/14	Brown Pelican	50 (e)	Undetermined	NW
WA	Klickitat County	02/26/14 - 04/13/14	Red Crossbill, Varied Thrush	8	Trauma: impact	NW
WI	Jones Island	02/15/14 - 04/02/14	Unidentified Scaup, Common Merganser, Ring- necked Duck, Common Loon, Canada Goose	200 (e)	Emaciation: starvation	WI
WI	Kenosha and Pleasant Prairie	03/05/14 - 04/02/14	Unidentified Duck	25 (e)	Starvation suspect	NON
WI	Manitowoc	03/05/14 - 04/02/14	Unidentified Duck	25 (e)	Starvation suspect	NON
WI	Milwaukee	03/05/14 - 04/02/14	Unidentified Merganser, Common Goldeneye, Unidentified Scaup, Ring-necked Duck	150 (e)	Starvation suspect	NON
WI	Oak Creek	03/08/14 - 03/11/14	Red-breasted Merganser, Unidentified Goldeneye, Lesser Scaup	35 (e)	Emaciation: starvation	NW
WI	Washington Island area	03/05/14 - 04/02/14	Common Goldeneye, Unidentified Merganser, Unidentified Scaup, White-winged Scoter	200 (e)	Starvation suspect	NON
<b>Updates and Corrections:</b>						
<b>Reported State</b>	<b>Location</b>	<b>Dates <sup>A</sup></b>	<b>Species</b>	<b>Mortality <sub>B</sub></b>	<b>Diagnosis <sup>C</sup></b>	<b>Laboratory <sub>D</sub></b>

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CA	Central Valley	04/10/13 - 07/01/13	Mourning Dove	100 (e)	Parasitism: trichomoniasis	CFG
CA	Colusa NWR	10/15/13 - 02/15/14	American Coot, White-fronted Greater Goose	100 (e)	Undetermined	NW
CA	Hayward Marsh	12/12/13 - 05/07/14	Ruddy Duck, Northern Shoveler, Unidentified Gull, American Wigeon, American Coot	892	Avian cholera	CAF
CA	Merced NWR	12/12/13 - 04/30/14	Ross' Goose, American Coot	200 (e)	Avian cholera	NW
CA	Sacramento NWR	12/15/13 - 02/15/14	American Coot, Lesser Snow Goose, Greater White-fronted Goose, Northern Pintail	100 (e)	Avian cholera	NW
CA	San Diego Bay NWR	05/15/13 - 05/30/13	Gull-billed Tern	115	Parasitism: acanthocephaliasis	NW, SWD
CA	San Joaquin River NWR	12/31/13 - 04/30/14	Ross' Goose, American Coot	600 (e)	Avian cholera	NW
CA	Sutter NWR	12/15/13 - 02/15/14	American Coot, Lesser Snow Goose, Aleutian Canada Goose	200 (e)	Undetermined	NW
KS	Cheyenne Bottoms	12/05/13 - 12/25/13	Yellow-headed Blackbird, Common Grackle, Red-winged Blackbird, European Starling, Brown-headed Cowbird	500 (e)	Trauma suspect	SCW
KS	Linn County	10/10/13 - 02/10/14	Red-winged Blackbird, Common Grackle, Cooper's Hawk, Blue Grosbeak, Common Yellowthroat	250 (e)	Trauma	SCW
LA	Crowley	02/20/13 - 02/22/13	Brown-headed Cowbird	100 (e)	Undetermined	NW
MD	Cukla Pond	06/26/13 - 08/01/13	Wood Frog	1000 (e)	Undetermined	NW
NC	Alligator River NWR	04/22/13 - 04/26/13	Red Wolf	5	Septicemia	NW
ND	Oakes	09/06/13 - 09/06/13	Rose-breasted Grosbeak	20 (e)	Undetermined	NW
NE	Mormon Island SRA	04/01/13 - 04/15/13	Unidentified Sandhill Crane	15 (e)	Bacterial infection suspect	NW
NJ	Carneys Point			100 (e)	Toxicosis: diazinon	SCW

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		12/31/13 - 12/31/13	Brown-headed Cowbird, Red- winged Blackbird, Common Grackle			
OH	Ashland County	07/15/13 - 08/15/13	Big Brown Bat	5	Trauma suspect	NW
OH	Freemont Reservoir	12/03/13 - 12/13/13	Ring-billed Gull	55	Anemia	NW
ONT	Mohawk Island NWA, Lake Erie	07/12/13 - 07/12/13	Caspian Tern	9	Botulism type E	CCW
ONT	Wasaga Beach	07/20/13 - 10/24/13	Long-Tailed Duck, Unidentified Duck or Goose, Unidentified Avian, White-winged Scoter, Common Goldeneye	1288	Botulism suspect	CCW
UT	Multiple counties	11/28/13 - 03/31/14	Bald Eagle	86	Viral Infection: West Nile	NW, SCW, UTV
WA	Port of Vancouver	09/30/13 - 03/18/14	Gadwall, Unidentified Scaup, American Coot, American Wigeon, Mallard	200 (e)	Botulism type C	NW
WI	Langlade	09/01/13 - 12/24/13	Red-tailed Hawk, Harris' Hawk	12	Gout	NW, WVL

<sup>A</sup> \*\*\*\* = cessation date not available.

<sup>B</sup> (e) = estimate, \*\*\* = mortality estimate not available.

<sup>C</sup> Suspect = diagnosis is not finalized or completed tests were unable to confirm the diagnosis, but field signs and historic patterns indicate the disease; Open = diagnosis is not finalized and tests are on-going; Undetermined = testing is complete or was not pursued and no cause of death was evident.

<sup>D</sup> California Animal Health and Food Safety Laboratory Network (CAF), Canadian Wildlife Health Cooperative (CCW), Disease Laboratory of the California Fish & Game (Wildlife Investigations Laboratory) (CFG), Idaho Wildlife Health Laboratory, Boise (ID), Maryland Department of Agriculture (MDA), Michigan Department of Natural Resources (MI), National Wildlife Health Center (NW), No diagnostics pursued (NON), New York State, Department of Environmental Conservation, Division of Fish, Wildlife & Marine Resources (NY), Oregon State Diagnostic Laboratory (OR), Other (OT), Sea World of San Diego (SWD), Southeastern Cooperative Wildlife Disease Study (SCW), Utah Veterinary Diagnostic Laboratory (UTV), Wisconsin Department of Natural Resources Wildlife Health Laboratory (WI), Wisconsin Veterinary Diagnostic Laboratory (WVL).

Written and compiled by the U.S. Geological Survey National Wildlife Health Center Epidemiology Team members: Anne Ballmann, LeAnn White, Barb Bodenstein, Thierry Work, and Jennifer Chipault.

To report mortality or receive information about this report, please contact the USGS National Wildlife Health Center, 6006 Schroeder Road, Madison , WI 53711, NWHC-epi@usgs.gov

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## Quarterly Mortality Reports

### Great Lakes winter waterfowl mortality

Avian mortality associated with emaciation and starvation accounted for over 30% (3,649/11,719) of total estimated mortality reported to the National Wildlife Health Center during the first quarter of 2014. Reports of emaciated birds ranged from brown pelicans (*Pelecanus occidentalis*) in Georgia in January to American robins (*Turdus migratorius*) in South Dakota in March, but the majority of investigations involved waterfowl in the Great Lakes states. Moribund and dead birds were found around the shores of Lakes Michigan, Erie, and Ontario starting in early January, with many carcasses uncovered during the spring thaw. Species most affected in the Great Lakes region were the diving ducks including mergansers (*Mergus* sp), scaup (*Aythya* sp), white-winged scoters (*Melanitta fusca*), and common goldeneye (*Bucephala clangula*). Waterfowl were also affected on smaller bodies of water inland from the Great Lakes (e.g., Pigeon Lake, Michigan and Conneaut Lake, Pennsylvania). Throughout the winter, Midwest news articles highlighted the appearance of stranded birds such as grebes (*Podiceps* sp) and mergansers in driveways and snow drifts, as well as the associated influx of submissions of weak birds to area rehabilitation centers. Stranding, starvation, and emaciation in dabbling and diving waterfowl were likely caused by the severe winter conditions in 2013/2014 resulting in increased ice cover on lakes and inaccessible food sources. According to the National Oceanic and Atmospheric Administration's Great Lakes Environmental Research Laboratory, ice covered more than 90% of the Great Lakes at peak in 2014, compared to an average annual maximum of 51.4% since 1973. Waterfowl carcasses from the Great Lakes region evaluated at various diagnostic laboratories (National Wildlife Health Center, New York State Department of Environmental Conservation, and Michigan and Wisconsin Departments of Natural Resources) were negative for a variety of other possible etiologies, including avian influenza, botulism, lead toxicosis, West Nile virus, avian cholera, and parasitic infections. Aspergillosis was detected in mallards (*Anas platyrhynchos*) near Lake Huron (Alcona County, Michigan). Some specimens had elevated levels of selenium but this was not considered to be a cause of death. Also detected in carcasses associated with groups of emaciated waterfowl were signs of trauma and drowning, likely due to harsh environmental conditions and/or weakened condition of the birds. Given the large avian population at risk and the broad geographical scale, the total waterfowl mortality associated with harsh winter 2013/2014 conditions in the Great Lakes region was likely far greater than that reported. Please submit relevant reports to Jenny Chipault, USGS National Wildlife Health Center, 608-270-2473, jchipault@usgs.gov

### Hawaiian Island sea urchin mortality

The National Wildlife Health Center-Honolulu Field Station is collaborating with University of Hawaii, State of Hawaii Division of Aquatic Resources, and The Nature Conservancy to investigate an unusual mortality of collector urchins (*Triplaneustes gratilla*) that has been ongoing since February 2014. This issue is important because urchins play a critical role as grazers in tropical coral reefs by helping prevent overgrowth of algae on reefs. Awareness of this issue was made apparent in the early 1980s in the Caribbean when more than 90% of its urchin population declined over a 3.5 million square kilometer area within approximately a 12 month period, resulting in an 80% decline of coral cover with attendant loss of biodiversity. Mortalities of collector urchins have been documented on most of the main Hawaiian Islands, and efforts are ongoing to identify the potential cause. Field investigations on Oahu have revealed at least two sites with mortalities, and a recent investigation on Maui confirmed presence of mortality on west Maui. Occasional reports have come from Hawaii and Kauai. A recent survey of urchins in south and southwest Maui revealed most to be healthy and the disease limited to a single area. The main species affected is collector urchins, but occasional reports of other species of urchins dying in north Kauai have been received; however, no specimens were available for laboratory evaluation. Contact: Dr. Thierry Work, USGS National Wildlife Health Center - Honolulu Field Station, 808-792-9520, thierry\_work@usgs.gov

### White-nose syndrome Winter 2013/2014 summary

In the United States, three new states (Arkansas, Michigan, and Wisconsin) reported their first confirmed cases of white-nose syndrome (WNS) among clinically affected cave-hibernating bats during the 2013/2014 winter season, increasing the total number of affected states to 25 and 5 Canadian provinces. In addition, continued expansion of the disease was reported in Midwestern and Southeastern states and in the Canadian provinces of Nova Scotia, New Brunswick, Quebec, and Ontario. Evidence of the disease now extends as far west as Jackson County, Missouri (approximate longitude -94.5°) on the Missouri/Kansas border and as far south as Paulding County, Georgia (approximate latitude 33.9°). Mortality among hibernating bats was observed in several sites within the newly WNS-confirmed states (Arkansas, Michigan) as well as in Georgia, which was first confirmed positive for WNS last winter (2012/2013). Non-lethal swab surveillance for the

causative fungus, *Pseudogymnoascus destructans* (Pd), expanded into the Great Plains and Southern states and, using this methodology, Pd was detected in several central Mississippi counties for the first time since the emergence of WNS in North America in 2007. Also of note, Woodward County, Oklahoma formerly classified as "WNS suspect" since spring 2010 was removed from the WNS distribution map based on subsequent testing with improved assays and surveillance. Several winter mortality events involving Brazilian free-tailed bats (Texas, Arkansas) were also investigated during this period. In both instances, submitted bats were found to be emaciated. All those tested for rabies were negative and no evidence of WNS or Pd exposure was detected. An underlying cause for the emaciation was not identified; starvation is suspected in the Texas mortality event. Partners are reminded that the NWHC provides diagnostic and epidemiological assistance to investigate unusual bat mortality events throughout the year. State/federal/tribal agencies wishing to participate in the expanded national Pd surveillance strategy should contact Dr. Anne Ballmann (608-270-2445, [aballmann@usgs.gov](mailto:aballmann@usgs.gov)) to discuss options for their region.



## National Wildlife Health Center

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USGS National Wildlife Health Center Quarterly Wildlife Mortality Report October 2013 to December 2013						
Reported State	Location	Dates	Species	Mortality <sup>A</sup>	Diagnosis <sup>B</sup>	Laboratory <sup>C</sup>
AK	Saint Lawrence Island	11/18/13 - 12/31/13	Crested Auklet, Thick-billed Murre, Northern Fulmar, Glaucous Gull	1,000 (e)	Avian cholera	NW
CA	Andree Clark Bird Refuge	11/17/13 - 12/21/13	American Coot	5	Trauma	CAF
CA	Hayward Marsh	12/12/13 -ongoing	Sora Rail, Unidentified Scaup, Ruddy Duck, Northern Shoveler, Northern Pintail	685	Avian cholera	CAF
CA	Madera	10/21/13 - 11/04/13	American Coot, Ruddy Duck, Unidentified Sandpiper	200 (e)	Botulism suspect	NON
CA	Merced NWR	12/12/13 -ongoing	Ross' Goose, American Coot	200 (e)	Avian cholera	NW
CA	Nearys Lagoon, Santa Cruz	11/07/13 - 11/20/13	American Coot	4	Trauma	CAF
CA	Redwood Shores	12/23/13 - 01/31/14	Green-winged Teal,	361	Avian cholera	NW

			Northern Shoveler, Ruddy Duck, American Coot, Canada Goose			
CA	San Joaquin River NWR	12/31/13 - ongoing	Ross' Goose, American Coot, Aleutian Canada Goose	600 (e)	Avian cholera	NW
CA	Woodbridge Creek Ecological Reserve	12/30/13 - 01/15/14	American Coot, American Wigeon, Black-necked Stilt, Northern Shoveler, Killdeer	200 (e)	Avian cholera	CAF
MN	Lake Winnibigoshish	10/29/13 - 11/15/13	American Coot, Lesser Scaup	10	Parasitism: trematodiasis	NW
MN	Upper Mississippi River NWR, Houston County	10/24/13 - 11/06/13	American Coot, Lesser Scaup, Bufflehead, Northern Shoveler	270	Parasitism: trematodiasis	NW
MO	Mark Twain Lake	10/15/13 - 11/15/13	American White Pelican	20 (e)	Undetermined	NON
NM	Lea County	11/13/13 - 12/31/13	Eurasian Collared Dove	100 (e)	Viral infection: avian paramyxovirus 1	NW
NM	South San Ysidro	10/29/13 - 10/29/13	American Crow	5	Trauma: gunshot	NW
NY	Eastern Lake Ontario	10/29/13 - 12/15/13	Common Loon, Long-tailed Duck, Herring Gull, Red-necked Grebe,	300 (e)	Botulism type E	NON

			Great Black-backed Gull			
OH	Freemont Reservoir	12/03/13 - 12/13/13	Ring-billed Gull	55	Undetermined	NW
OR	Troutdale	10/11/13 - 10/17/13	Bullfrog	3,500 (e)	Undetermined	OR, SDZ
PA	Grove City	10/03/13 - 10/03/13	Cedar Waxwing	9	Undetermined	SCW
TN	Nashville	10/23/13 - 10/23/13	European Starling	15	Renal failure	SCW
TX	Odessa	10/22/13 - 10/22/13	White-winged Dove	6	Toxicosis: strychnine	NW
US	Monterey Bay, CA and Salish Sea, WA	10/01/13 -ongoing	Purple Sea Star, Sunflower Sea Star	2,000,000 (e)	Open	NW, OT
UT	Great Salt Lake	11/11/13 - 01/31/14	Eared Grebe	20,000 (e)	Viral infection: West Nile	NW
UT	Great Salt Lake	12/14/13 - 12/18/13	Northern Shoveler	200 (e)	Trauma: impact	NW
UT	Great Salt Lake	12/26/13 - 12/26/13	Eurasian Collared Dove	50	Viral infection: avian paramyxovirus 1	NW
UT	Multiple counties	11/28/13 -ongoing	Bald Eagle	69	Viral infection: West Nile	NW, UTV
VA	Prince William County	12/12/13 - 12/12/13	European Starling	100 (e)	Trauma: impact	NW
WA	East Wiser Lake	12/12/13 - 01/15/14	Mallard, American Wigeon, American Coot, Bufflehead, Northern Shoveler	100 (e)	Aspergillosis	NW
WA	Seattle	12/23/13 - 12/23/13	American Robin, Dark-eyed Junco	12	Open	NW
WA			Mallard	300 (e)	Aspergillosis	NW

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	Snohomish County	11/09/13 - 11/11/13				
WA	Wiser Lake	12/16/13 - 01/31/14	Trumpeter Swan	200 (e)	Lead poisoning	NW
WI	Upper Mississippi River NWR, La Crosse County	10/24/13 - 11/07/13	American Coot, Lesser Scaup, Blue-winged Teal	45	Parasitism: trematodiasis	NW
WY	Rock Springs	12/01/13 - 01/24/14	Eurasian Collared Dove	150 (e)	Viral infection: pigeon paramyxovirus 1	NVL, WY
<b>Updates and Corrections:</b>						
<b>Reported State</b>	<b>Location</b>	<b>Dates</b>	<b>Species</b>	<b>Mortality<sup>A</sup></b>	<b>Diagnosis<sup>B</sup></b>	<b>Laboratory<sup>C</sup></b>
AZ	Yuma County	09/01/13 - 12/01/13	Eurasian Collared Dove, White-winged Dove, Mourning Dove	200 (e)	Viral infection: pigeon paramyxovirus 1	NW
MD	Poplar Island	06/24/13 - 10/04/13	Mallard, Black-necked Stilt, Red-winged Blackbird, Great Blue Heron, Double-crested Cormorant	346	Botulism type C	NW, SCW
MI	Gulliver, Lake Michigan	06/13/13 - 11/06/13	Common Loon, Double-crested Cormorant, Ring-billed Gull, Long-tailed Duck, Herring Gull	11	Botulism suspect	NON
MI	Sleeping Bear Dunes National Lakeshore	06/25/13 - 11/22/13	Red-breasted Merganser, Ring-billed Gull, Double-crested Cormorant,	484	Botulism type E	NW

			White-winged Scoter, Long-tailed Duck			
MN	Upper Mississippi River NWR, Houston County	04/08/13 - 05/08/13	American Coot, Lesser Scaup, Ring-necked Duck, Northern Shoveler, Bufflehead	5,505 (e)	Parasitism: trematodiasis	NW
OH	Easton	09/30/13 - 09/30/13	Ovenbird, Common Yellowthroat, Black-throated Blue Warbler	8	Undetermined	SCW
TX	Lubbock	09/01/13 - 12/31/13	Eurasian Collared Dove, Rock Dove, White-winged Dove	200 (e)	Toxicosis: carbamate compound	NW -006
TX	Perryton	08/08/13 - 08/10/13	House Sparrow	197	Undetermined	NW
WI	Necedah	04/10/13 - 04/13/13	Dark-eyed Junco, Fox Sparrow	69	Toxicosis: carbamate compound	NW -007
WI	Upper Mississippi River NWR, La Crosse County	04/10/13 - 05/06/13	Lesser Scaup, American Coot, Ruddy Duck, Bufflehead, Ring-necked Duck	1,415 (e)	Parasitism: trematodiasis suspect	NW

<sup>A</sup> (e) = estimate

<sup>B</sup> Suspect = diagnosis is not finalized or completed tests were unable to confirm the diagnosis, but field signs and historic patterns indicate the disease; Open = diagnosis is not finalized and tests are ongoing; Undetermined = testing is complete or was not pursued and no cause of death was evident; NOS = not otherwise specified.

<sup>C</sup>Utah Veterinary Diagnostic Laboratory (UTV), California Animal Health and Food Safety Laboratory Network (CAF), Cornell University (COR), National Wildlife Health Center (NW), New Hampshire Veterinary Diagnostic Laboratory (NH), No diagnostics pursued (NON), New York State, Department of Environmental Conservation, Division of Fish, Wildlife & Marine Resources (NY), Oregon State Diagnostic Laboratory (OR), Other (OT), San Diego Zoo Diagnostic Laboratory (SDZ), Southeastern Cooperative Wildlife Disease Study (SCW), Tufts



University, Massachusetts (TU), USDA National Veterinary Services Laboratory, Ames, Iowa (NVL), Washington State Disease Laboratory (WA), Wyoming State Veterinary Laboratory (WY)

Written and compiled by the U.S. Geological Survey National Wildlife Health Center wildlife epidemiologists: Anne Ballmann, LeAnn White, Barb Bodenstein, and Jennifer Chipault.

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## **Quarterly Mortality Reports**

### **West Nile virus at the Great Salt Lake**

Diagnostic evaluations of eared grebe (*Podiceps nigricollis*) and bald eagle (*Haliaeetus leucocephalus*) carcasses submitted to the USGS National Wildlife Health Center (NWHC) by the Utah Division of Wildlife Resources (UDWR) from the Great Salt Lake area confirmed West Nile virus (WNV) as the cause of death. These diagnoses were based on pathological findings, molecular testing (RT-PCR), and isolation of viable virus from most tissues. These findings were consistent with the confirmation of WNV in a bald eagle from the same event by the Utah Veterinary Diagnostic Laboratory. Extensive testing ruled out many other causes of death. Carcasses were negative for exposure to lead and organophosphate compounds; RT-PCR screening tests were negative for avian influenza and avian paramyxovirus-1 (Newcastle Disease virus); and no pathogenic bacteria such as *Pasteurella multocida* (causative agent of avian cholera) were isolated. To our knowledge, this is the first report of WNV in eared grebes and the largest single raptor mortality event attributed to WNV in the United States.

The event was first reported by the UDWR when sick and dead eared grebes were observed in a northern section of the Great Salt Lake (GSL) in mid-November 2013. Most birds were found dead or dying with clinical signs of drooping heads, lethargy, and inability to dive. At that time, an estimated 2 million grebes were arriving during fall migration and were potentially at risk. UDWR estimates that up to 1 percent of the grebe population had died (~15,000-20,000) during this mortality event. It is unclear if the entire 15,000-20,000 grebe mortality was due to WNV, and additional diagnostic evaluations on both eared grebes and bald eagles carcasses are in progress. The last significant eared grebe mortality event on the GSL was caused by avian cholera (*Pasteurella multocida*) and occurred during winter 2010 when an estimated 10,000 birds died. Grebes typically migrate from the GSL as food sources (brine shrimp) diminish, and travel to the west coast of the United States to spend the remainder of winter in coastal bays and estuaries of California, the Salton Sea of California, and the Gulf of California in Mexico.

In early December, the UDWR again contacted the NWHC to report morbidity and mortality in bald eagles occurring in proximity to the GSL. The first bald eagle was brought to the

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Wildlife Rehabilitation Center of Northern Utah on December 1, 2013. Clinical signs in eagles, some since diagnosed with WNV, included head tremors, paralysis of the wings and legs, formation of plaques at the back of the throat, and progressive seizures. To date, 69 bald eagles have been found sick or dead in multiple counties in Utah (primarily Box Elder, Davis, Salt Lake, Utah, and Weber counties). The GSL is a major overwintering site for bald eagles, estimated at 750 to 1,250 birds annually. For more information, view the [Wildlife Health Bulletin on this topic](#).

#### **Avian cholera in seabirds in Alaska**

Large numbers of sick and dead seabirds were observed washing ashore along the northern coast of Saint Lawrence Island, Alaska in late November 2013. Citizens of Gambell and Savoonga, two tribal villages approximately 40 miles apart on this remote 100-mile long island in the Bering Sea, reported the event immediately to the University of Alaska's Marine Advisory Program stationed in Nome. Villagers were able to collect some specimens from the initial die-off, including a thick-billed murre (*Uria lomvia*), a Northern fulmar (*Fulmarus glacialis*), and a crested auklet (*Aethia cristatella*), which were sent to the National Wildlife Health Center for diagnostic evaluation.

Avian cholera (*Pasteurella multocida*) was diagnosed based on bacterial cultures of liver and characteristic lesions in all bird specimens submitted. Testing for avian influenza was negative. Prior to this event, avian cholera had not been reported in Alaska. The closest avian cholera outbreak reported in recent history involved snow geese (*Chen caerulescens*) on Banks Island, Northwest Territories, Canada. The closest avian cholera outbreak involving seabirds was reported in common eiders (*Somateria mollissima*) and occurred on East Bay Island, Nunavut, Canada.

Affected birds were observed swimming in circles with heads laid over their backs, "throwing one wing in the air," and subsequently dying. The weather in this area at the time was unseasonably mild with many recent southerly storms and freeze/thaw cycles. Average temperatures were in the mid 40's and the sea remained ice-free, whereas sea ice would normally be formed by October. Native communities on Saint Lawrence Island rely almost exclusively on the subsistence harvest of many marine species, including birds, for food. Many seabirds use this area of the Bering Sea as a staging area during migration and it is an overwintering area for eiders, including the world's population of spectacled eider (*Somateria fischeri*). For more information, view the Wildlife Health Bulletin on [Wildlife Health Bulletin on this topic](#).

#### **White-nose syndrome winter 2013/2014 summary**

White-nose syndrome (WNS) has been confirmed in cave-hibernating bats in one new state (Arkansas) thus far during the 2013/2014 winter season. This represents a continued expansion of *Pseudogymnoascus* (formerly *Geomyces*) *destructans* distribution on the landscape. No evidence exists of geographic barriers preventing its spread. Since it was first recognized near Albany, New York in 2007, WNS has now been confirmed in 23 states and 5 Canadian provinces. Several additional counties in Missouri had confirmed cases of WNS as well as suspected cases this winter based on visible signs suggesting that the disease is now endemic throughout Missouri. Sites in several northeastern states—where WNS has been present the longest—continue to be occupied by bats although in much lower numbers than before the disease struck and evidence of bat mortality at the hibernaculum is beginning to be reported in several recently affected Southern states. Winter hibernacula survey data are being reviewed by state and federal management agencies to better understand the ongoing impacts of WNS on bat populations in affected regions. Recent phylogenetic analyses have demonstrated the WNS fungus is more closely related to the genus *Pseudogymnoascus* rather than *Geomyces*. Thus, the fungus has been reclassified as *P. destructans*. For the latest WNS updates, consult [NWHC Wildlife Health Bulletins](#).

[Current NWHC bat submission guidelines](#).

**Leading causes of avian mortality in the United States during 2013**

During 2013, 137 avian morbidity and mortality events were investigated by or reported to the USGS National Wildlife Health Center (NWHC). More than 63,000 birds were estimated to be affected during these events. There were more epizootic events reported from the Pacific flyway (56) than any other flyway in 2013 (Mississippi [32], Central [26], Atlantic [23]). The estimated avian mortality was also higher in the Pacific flyway (46,361 birds) than any other flyway (Mississippi [8,790], Central [6,171], Atlantic [1,757]).

Based on carcasses examined, infectious disease was responsible for 83% (52,275/63,079) of avian deaths reported to NWHC during 2013. Avian botulism (types C and E) was associated with 11,433 bird mortalities and was the cause of more epizootic events (24/138) than any other cause of death during 2013. Over 60% (7,000/11,433) of the mortality attributed to botulism occurred during a single event in northern California involving mallards (*Anas platyrhynchos*), whiteface ibis (*Plegadis chihi*), green-winged teal (*Anas carolinensis*), northern pintails (*Anas acuta*), and western grebes (*Aechmophorus occidentalis*). Although West Nile virus was responsible for the largest number of avian mortalities (20,160) during 2013, the majority of mortality associated with this disease occurred at a single event in Utah that involved primarily eared grebes (*Podiceps nigricollis*). Avian cholera was the third leading cause of death and caused the third highest number of avian epizootic events (17) during 2013. Although various waterfowl including redhead (*Aythya Americana*), canvasback (*Aythya valisineria*) and ruddy ducks (*Oxyura jamaicensis*) were affected during these events, the highest mortality due to avian cholera occurred in eared grebes and snow geese (*Chen caerulescens*). There also continued to be several avian morbidity and mortality events associated with human activities, including several hundred deaths attributed to lead poisoning (species included trumpeter swans [*Cygnus buccinators*] and Canada geese [*Branta Canadensis*]), 516 deaths due to pesticides, insecticides, and other toxicants (primarily Eurasian collared doves [*Streptopelia decaocto*], European starlings [*Sturnus vulgaris*], and red-winged blackbirds [*Agelaius phoeniceus*]), and 34 deaths (primarily sandhill cranes [*Grus Canadensis*]) due to electrocution following a weather event (dense fog).



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### USGS National Wildlife Health Center Quarterly Wildlife Mortality Report April 2013 to June 2013

State	Location	Dates <sup>A</sup>	Species	Mortality <sup>B</sup>	Diagnosis <sup>C</sup>	Laboratory <sup>D</sup>
AL	Gulf State Park	05/05/13 - 05/12/13	Brown Pelican	10	Undetermined	NON
AZ	Glendale	04/01/13 - 06/27/13	Mourning Dove, American Kestrel, Red-tailed Hawk, Cooper's Hawk, Harris' Hawk	40 (e)	Parasitism: trichomoniasis	NW
CA	San Diego Bay NWR	05/15/13 - 05/30/13	Gull-billed Tern	70	Parasitism: acanthocephaliasis	NW, SWD
CA	Lancaster	06/20/13 - 07/16/13	Hybrid Mallard Duck	80 (e)	Botulism suspect	CAF
CA	Batiquitos Lagoon Ecological Reserve	06/11/13 - 07/29/13	California Least (Little) Tern	150 (e)	Starvation suspect	CAF
CA	Big Bear Lake	06/28/13 - 08/13/13	Acorn Woodpecker, Northern Flicker	15 (e)	Open	CAF
CA	Dana Point Preserve	06/21/13 - 06/27/13	California Gnatcatcher	6 (e)	Undetermined	NW
CA	Yuba County	06/29/13 - 08/20/13	Muscovy Duck	12	Botulism suspect	CAF
CA	Hayward Region Marsh	05/02/13 - 08/30/13	Unidentified Duck, Mallard, Gadwall,	277	Botulism suspect	CAF

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			Unidentified Avian, Canada Goose			
CA	Los Angeles	05/13/13 - 05/15/13	Mallard	10 (e)	Botulism suspect	CAF
CA	Mojave National Preserve	05/15/13 - 08/15/13	Bighorn Sheep	100 (e)	Pneumonia	CAF
DE	Brandywine Creek State Park, Freshwater Marsh Nature Preserve	05/03/13 - 05/27/13	Wood Frog, Spring Peeper Frog, American Toad, Unidentified Frog	100 (e)	Viral Infection: Ranavirus	NW
DE	Lums Pond State Park	05/30/13 - 06/14/13	Spring Peeper Frog, Wood Frog	1000 (e)	Viral Infection: Ranavirus	NW
FL	Jacksonville	06/13/13 - 06/30/13	Muscovy Duck	12	Duck plague suspect	FL, NW
FL	Jacksonville	06/26/13 - 07/24/13	Great Egret, Black- crowned Night-Heron	76 (e)	Parasitism: eustrongylidiasis	NW
IA	South Twin Lake	04/12/13 - 05/08/13	American Coot, Greater White- fronted Goose, Lesser Snow Goose, Gadwall, Green- winged Teal	300	Avian cholera	NW
IN	Allen County	06/12/13 - 08/30/03	Mallard, Canada Goose, Domestic Duck	256	Botulism type C	NW
MA	Essex County	04/01/13 - 04/10/13	Canada Goose	9 (e)	Lead poisoning	NW
MA	Great Meadows NWR	05/15/13 - 08/06/13	Muskrat	4	Trauma: impact	NW
MD			Wood Frog	10		NW

	C&O Canal NHP	06/03/13 - 06/21/13			Viral Infection: Ranavirus	
MD	Washington County	06/26/13 -****	Unidentified Frog	10 (e)	Open	NON
MD	Columbia	05/06/13 - 05/30/13	Bullfrog, American Toad, Painted Turtle	15	Viral Infection: Ranavirus suspect	NW
MD	Ocean City	05/08/13 - 05/09/13	Clapper Rail	28	Trauma: impact	MDA, NW
MD	Oregon Ridge Park	05/15/13 - 05/30/13	Green Frog, Wood Frog	15 (e)	Viral Infection: Ranavirus	NW
MD	Patapsco State Park	05/31/13 - 06/20/13	Wood Frog, Spotted Salamander	200 (e)	Viral Infection: Ranavirus	NW
MD	Poplar Island	06/24/13 -ongoing	Mallard, Black- necked Stilt, Red-winged Blackbird, Great Blue Heron, Double- crested Cormorant	318	Botulism type C	NW
MD	Seth Forest	06/17/13 - 07/09/13	Eastern Spadefoot Toad, Spotted Salamander	20	Viral Infection: Ranavirus	NW
MI	Sleeping Bear Dunes National Lakeshore	06/25/13 -ongoing	Ring-billed Gull, Double- crested Cormorant, Herring Gull, Canada Goose, Sanderling	102	Botulism type E	NW
MN	Upper Mississippi River NWR, Houston County	04/08/13 - 05/01/13	Lesser Scaup, American Coot, Ring- necked Duck, Northern Shoveler, Bufflehead	*** (e)	Parasitism: Sphaeridiotrema sp.	NW

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MT	Billings	05/26/13 - 07/31/13	Red Crossbill	50 (e)	Salmonellosis suspect	NON
NE	Mormon Island State Recreation Area	04/01/13 -****	Unidentified Sandhill Crane	11 (e)	Bacterial infection suspect	NW
NJ	Berkshire Valley WMA	06/01/13 - 06/05/13	Wood Frog	50000 (e)	Open	NW
NJ	Blairstown	06/16/13 - 06/19/13	Wood Frog	200 (e)	Open	NW
OH	Fayetteville	04/14/13 - 04/16/13	European Starling, House Sparrow, American Robin	9 (e)	Pasteurellosis	NW
SD	Brule County	04/15/13 - 05/25/13	Redhead Duck, Canvasback, Green-winged Teal, Blue-winged Teal, Mallard	1750 (e)	Avian cholera	NW
SD	Sand Lake NWR	04/16/13 - 04/30/13	Ring-necked Duck, Lesser Snow Goose, Mallard, Northern Pintail, Redhead Duck	250 (e)	Avian cholera	NW
SD	Aberdeen	04/27/13 - 05/06/13	Canada Goose, Greater White-fronted Goose, Unidentified Domestic or Hybrid Goose, Mallard	20 (e)	Avian cholera	NW
TX	Terry County	04/03/13 - 04/03/13	Greater Sandhill Crane	32	Electrocution suspect	NON
UT	Tooele County	04/15/13 - 04/15/13	Eared Grebe	4972	Trauma	DoD, NW, UT

VA	Ft. Eustis	06/26/13 - 07/12/13	Evening Bat	20 (e)	Parasitism: external, NOS Emaciation	NW
VA	Chincoteague Island	05/06/13 - 05/17/13	Muscovy Duck	12 (e)	Duck plague	NW
WI	Town of Necedah	04/10/13 -****	Unidentified Junco, Fox Sparrow	67	Toxicosis: carbamate suspect	NW
WI	Trempealeau NWR	06/09/13 - 06/13/13	Great Blue Heron	5	Toxicosis: blue-green algae suspect	NW
WI	Upper Mississippi River NWR, La Crosse County	04/08/13 - 05/01/13	Lesser Scaup, American Coot, Ring- necked Duck, Canvasback, Redhead Duck	***	Parasitism: trematodiasis	NW
<b>Multiple States</b>						
<b>States</b>	<b>Location</b>	<b>Dates <sup>A</sup></b>	<b>Species</b>	<b>Mortality <sub>B</sub></b>	<b>Diagnosis <sup>C</sup></b>	<b>Laboratory <sub>D</sub></b>
NY	Multiple counties	01/28/13 - 04/24/13	Common Redpoll	50 (e)	Salmonellosis (S. typhimurium)	COR, NY
SD	LaCreek NWR	07/10/12 - 09/03/12	Blue-winged Teal, Mallard, Unidentified Shorebird, Northern Pintail, Killdeer	200 (e)	Undetermined	NW
WA	Whatcom County	01/29/13 - 01/29/13	River Otter	7	Undetermined	OT, WA

<sup>A</sup> \*\*\*\* = cessation date not available at this time.

<sup>B</sup> (e) = estimate, \*\*\* = mortality estimate not available at this time.

<sup>C</sup> Suspect = diagnosis is not finalized or completed tests were unable to confirm the diagnosis, but field signs and historic patterns indicate the disease; Open = diagnosis is not finalized and tests are on-going; Undetermined = testing is complete or was not pursued and no cause of death was evident; NOS = not otherwise specified.

<sup>D</sup> California Animal Health and Food Safety Laboratory Network (CAF), Cornell University (COR), Department of Defense (DoD), Florida Fish and Wildlife Conservation Commission (FL), Maryland Department of Agriculture (MDA), National Wildlife Health Center (NW), No diagnostics pursued (NON), NY State, DEC, Division of Fish, Wildlife & Marine Resources

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(NY), Other (OT), Sea World of San Diego (SWD), Utah Division of Wildlife Resources (UT), Washington State Disease Laboratory (WA).

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## **Quarterly Mortality Reports**

### **Acanthocephaliasis mortality in Gull-billed terns (California).**

Gull-billed terns (*Gelochelidon nilotica vanrossemi*) were submitted to the National Wildlife Health Center by refuge staff at the San Diego Bay National Wildlife Refuge during the month of May 2013 as a result of a mortality event involving 70 breeding adults and chicks. Clinical signs included head tilt, difficulty breathing, and ataxia. No other birds, including waterfowl, skimmers, or other tern and gull species, using this nesting area appeared affected.

There was no evidence of trauma and birds were in fair body condition with mild to moderate lack of pectoral musculature, suggestive of poor nutritional status. All terns had shrimp-like crustaceans present in the proventriculus and gizzard which were later identified as mole crabs (*Emerita analoga*), one of the most abundant invertebrates living on sandy beaches along the Pacific coast from Alaska to Baja California. In addition, the birds had moderate to heavy presence of intestinal parasites, identified as the acanthocephalan *Profilicollis altmani*, within the intestines as well as protruding through the intestinal walls into the abdominal cavity causing associated peritonitis. Brain cholinesterase levels were within normal limits for common terns indicating these birds were not recently exposed to organophosphates or carbamates. Routine bacterial cultures of liver and lung revealed no pathogenic organisms.

Acanthocephalans can infect all vertebrates, with ducks, geese and swans most commonly affected. Epizootic mortality events involving this parasite may occur and usually correspond to food shortages and/or periods of high stress (migration and breeding). Mole crabs are a common intermediate host and can have very high concentrations of the parasite. Contact: Barbara Bodenstein, USGS National Wildlife Health Center, 608-270-2447, bbodenstein@usgs.gov

### **Suspected carbamate poisoning in songbirds (Wisconsin)**

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The U.S. Fish and Wildlife Service received reports of more than 60 dead songbirds at a private residence in Juneau County, Wisconsin in mid-April 2013. The primary affected species were fox sparrows (*Passerella iliaca*; FOSP) and dark-eyed juncos (*Junco hyemalis*; DEJU). Although there were bird feeders in the yard, the majority of the birds were observed under the resident's cedar trees. Four specimens (2 DEJU and 2 FOSP) from this event were examined at the USGS National Wildlife Health Center. All four had significant brain cholinesterase inhibition and results from follow-up tests were suggestive of carbamate poisoning as the cause of this mortality event.

Carbamate compounds are found in a variety of pesticides approved for application in agricultural and residential land uses. Although these chemicals are considered short-lived in the environment (lasting days instead of months or years) they have also been associated with wild bird deaths throughout the United States. The toxicity of carbamate compounds is due to their ability to disrupt the nervous system of invertebrates and vertebrates through inhibition of cholinesterase enzymes. Once an area contaminated by a pesticide is identified it is important to not only prevent access of the area by additional birds, but also to pick up and properly dispose of carcasses to prevent secondary toxicity in scavengers. Contact: LeAnn White, USGS National Wildlife Health Center, 608-270-2491, clwhite@usgs.gov

### **Eustrongyloides mortality in juvenile great egrets (Florida)**

The Florida Fish & Wildlife Commission investigated mortality of juvenile great egrets at a large active urban rookery (>1000 birds) in Jacksonville, Florida. Mortality was first reported July 23, 2013 at which time biologists observed 71 great egrets (*Ardea alba*) and 5 juvenile black-crowned night-herons (*Nycticorax nycticorax*) dead; sick individuals were on the ground and exhibited uncoordination. None of the adults on-site were affected. According to local residents, the die-off began approximately four weeks earlier and had occurred in previous years following harsh weather.

The USGS National Wildlife Health Center received three freshly dead egrets for evaluation; two were emaciated while the third bird was in good nutritional condition. All three juveniles had evidence of disseminated helminth parasite infection observed at necropsy. Various trematode, nematode, cestode and acanthocephalan parasites were identified; the most notable being nematodes of the genus *Eustrongylides*. Similar findings were reported in specimens examined by the Southeastern Cooperative Wildlife Disease Study. Mortality from *Eustrongylides* sp. infection occurs from penetration of the parasite through the stomach wall resulting in secondary peritonitis. Young wading birds are most commonly affected although infections have also been reported in birds of prey from consuming infected fish, amphibians, or snakes that serve as either secondary intermediate hosts or transport hosts in the parasite's complex life cycle. Major mortality events attributed to *Eustrongylidosis* have been reported sporadically in Texas, Louisiana, Florida, Virginia, Delaware, South Carolina and Indiana over the past three decades. Contact: Anne Ballmann, USGS National Wildlife Health Center, 608-270-2445, aballmann@usgs.gov

More information on eustrongylidosis can be found in [the Field Guide](#).

### **Amphibian mortality surveillance in the northeastern United States**

A regional, two-year surveillance project is underway in Maryland, New Jersey, Delaware, Pennsylvania and Virginia to better understand the geographic distribution and cause(s) of juvenile mortality among wild amphibians. Biologist Scott Smith, with the Maryland Department of Natural Resources, is the study coordinator. Other collaborating partners include Towson University (Maryland), Montclair State University (New Jersey), USGS-Patuxent Wildlife Research Center (Maryland), New Jersey Division of Fish and Wildlife, Delaware Division of Fish and Wildlife, Pennsylvania Fish and Boat Commission, Virginia

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Department of Game and Inland Fisheries, Conserve Wildlife Foundation (New Jersey), and the Smithsonian Conservation Biology Institute (Washington, DC).

The USGS National Wildlife Health Center provides diagnostic evaluation of specimens associated with current or suspected amphibian die-offs at select study sites for the surveillance project. Thus far, ranavirus infections have been identified at 8 of 65 locations (2-Delaware; 6-Maryland) surveyed in 3 states. Evaluation of morbidity and mortality at two additional study sites in New Jersey is pending, as are some non-study sites in Maryland that also reported amphibian die-offs in 2013. Wood frog tadpoles (*Rana sylvatica*) are most frequently involved in the die-offs which can also include spring peepers (*Pseudacris crucifer*), green frogs (*Rana clamitans*), American toads (*Bufo americanus*), eastern spadefoot toads (*Leptobrachium* sp.) and/or spotted salamanders (*Ambystoma maculatum*). Field signs include abnormal swimming behavior, hemorrhages on the ventral surface, swollen appearance, and mass mortality or lack of live amphibians. Mortality estimates range from a few individuals to thousands based on spring 2013 egg mass counts at some sites. Ranavirus-associated mortality among amphibians occurs rapidly, potentially decimating an entire season's recruits within 1-2 weeks at affected locations. This can be easily missed if sites are only visited once during the spring. Population level impacts at locations with recurrent seasonal mortality can be significant. Contact: Anne Ballmann, USGS National Wildlife Health Center, 608-270-2445, [aballmann@usgs.gov](mailto:aballmann@usgs.gov)



## National Wildlife Health Center

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### USGS National Wildlife Health Center Quarterly Wildlife Mortality Report January 2013 to March 2013

State	Location	Dates <sup>A</sup>	Species	Mortality <sub>B</sub>	Diagnosis <sup>C</sup>	Laboratory <sub>D</sub>
CA	Lower Klamath and Tule Lake NWR	02/01/13 - 04/08/13	Lesser Snow Goose, American Wigeon, Unidentified Swan, Northern Pintail, Canvasback	1240 (e)	Avian cholera	NW
CA	Imperial County	01/20/13 - 02/15/13	Northern Pintail, Mallard	40 (e)	Undetermined	NW
CA	Salton Sea	01/25/13 - 03/16/13	Ruddy Duck, American Coot, Ring-billed Gull, Double-crested Cormorant	1400 (e)	Avian cholera	NW
CA	Salton City	03/11/13 - 03/31/13	Mourning Dove	50 (e)	Parasitism: trichomoniasis	NW
CA	Kings County	02/19/13 - 04/15/13	Ruddy Duck, Unidentified Waterfowl, American Avocet, Unidentified Goldeneye, Peregrine Falcon	100 (e)	Avian cholera	NW
FL	Lemon Bay	01/09/13 - 04/21/13	Manatee	267 (e)	Toxicosis: brevetoxin	FL
FL	Merritt Island			250 (e)	Emaciation	NW

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		02/01/13 - 04/20/13	Eastern Brown Pelican			
FL	Live Oak	01/09/13 - 01/09/13	Brazilian Free-tailed Bat, Southeastern Myotis	41	Trauma	SCW
GA	Dade County	02/25/13 -4/30/13	Eastern Pipistrelle (AKA Tri- colored)	6 (e)	Fungal Infection: white-nose syndrome	SCW
GA	Ellijay	03/10/13 - 03/12/13	American Robin	45 (e)	Trauma	SCW
GA	Grovetown	02/21/13 - 02/28/13	Brown- headed Cowbird, American Goldfinch	7 (e)	Salmonellosis	SWD
GA	Clarke County	02/22/13 - 02/22/13	Cedar Waxwing	5	Trauma	SCW
LA	Crowley	02/20/13 - 02/22/13	Brown- headed Cowbird	100 (e)	Open	NW
MO	Squaw Creek NWR	02/11/13 - 02/19/13	Lesser Snow Goose, Ross' Goose	51	Avian cholera	NW
MT	Browns Lake	03/15/13 - 04/30/13	Northern Pintail, Mallard, Green- winged Teal, Northern Shoveler	150 (e)	Parasitism: trematodiasis suspect	NON
NE	Clay County	03/09/13 - 04/05/13	Lesser Snow Goose, Northern Pintail, Mallard, Ross' Goose, Redhead Duck	1887	Avian cholera	NW
NH	Lake Sunapee	02/15/13 - 02/17/13	Mallard, Domestic Black Duck	30	Predation	NW
NV	Clark County	01/07/13 - 01/07/13	Gambel's Quail	6	Trauma	NW

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NY	Multiple Counties	01/28/13 - 04/24/13	Common Redpoll	40 (e)	Salmonellosis (S. typhimurium)	COR, NY
OH	Cuyahoga County	01/02/13 - 01/02/13	Canada Goose, Mallard	40 (e)	Trauma: gunshot	NW
OH	Wadsworth	01/24/13 -****	Little Brown Bat	15 (e)	Fungal Infection: white-nose syndrome	NW
OK	McClain County	03/03/13 - 03/06/13	Red-winged Blackbird, Eastern Meadowlark, Mourning Dove	90 (e)	Toxicosis: strychnine	SCW - 008
ONT	Sudbury County	02/27/13 - 05/31/13	Little Brown Bat, Northern Long-Eared Bat	8	Fungal Infection: white-nose syndrome	CCW
PEI	Queens County	01/10/13 - 05/31/13	Little Brown Bat, Northern Long-Eared Bat	8	Fungal Infection: white-nose syndrome	CCW
TN	Lawrenceburg	02/07/13 - 02/07/13	Common Grackle	15 (e)	Undetermined	SCW
UT	Farmington Bay WMA	03/05/13 - 03/10/13	Tundra Swan, Canvasback	300 (e)	Emaciation	NW
UT	Great Salt Lake	01/03/13 - 01/16/13	Eared Grebe	2000 (e)	Avian cholera	NW
VA	Cumberland Gap NHP	01/03/13 -4/30/13	Eastern Pipistrelle (AKA Tri-colored), Little Brown Bat, Northern Long-eared Bat	7 (e)	Fungal infection: white-nose syndrome	SCW
WA	Pierce County	01/04/13 - 01/04/13	Pine Siskin	10 (e)	Trauma suspect	NON
WA	Whatcom County	01/14/13 - 01/14/13	Pine Siskin	200 (e)	Trauma: impact	NW
WA	Sprague		Red-tailed Hawk, Great	104 (e)	Toxicosis: Famphur (starlings), Toxicosis:	NW - 009

		01/27/13 - 05/01/13	Horned Owl, European Starling		Famphur suspect (raptors)	
WI	Waukesha County	01/12/13 - 03/30/13	Pine Siskin, American Goldfinch	33 (e)	Salmonellosis suspect	NON
WI	Walworth County	02/01/13 - 02/20/13	American Coot	13 (e)	Emaciation: starvation suspect	NW
WY	Teton	03/27/13 - 04/15/13	Trumpeter Swan	13 (e)	Emaciation	NW, WY
<b>Multiple States</b>						
<b>States</b>	<b>Location</b>	<b>Dates <sup>A</sup></b>	<b>Species</b>	<b>Mortality <sub>B</sub></b>	<b>Diagnosis <sup>C</sup></b>	<b>Laboratory <sub>D</sub></b>
NC, VA	Multiple Counties	03/19/13 -ongoing	Common Loon, Razorbill, Horned Grebe, Greater Shearwater, Northern Gannet	130 (e)	Emaciation	NW, SCW

<sup>A</sup> \*\*\*\* = cessation date not available.

<sup>B</sup> (e) = estimate, \*\*\* = mortality estimate not available.

<sup>C</sup> Suspect = diagnosis is not finalized or completed tests were unable to confirm the diagnosis, but field signs and historic patterns indicate the disease; Open = diagnosis is not finalized and tests are on-going; Undetermined = testing is complete or was not pursued and no cause of death was evident; NOS = not otherwise specified.

<sup>D</sup> Canadian Cooperative Wildlife Health Centre (CCW), Cornell University (COR), Florida Fish and Wildlife Conservation Commission (FL), National Wildlife Health Center (NW), No diagnostics pursued (NON), New York State, DEC, Division of Fish, Wildlife & Marine Resources (NY), Sea World of San Diego (SWD), Southeastern Cooperative Wildlife Disease Study (SCW), Wyoming State Veterinary Laboratory (WY).

Written and compiled by the U.S. Geological Survey National Wildlife Health Center Field Investigation Team members: Anne Ballmann, LeAnn White, Barb Bodenstein, and Jennifer Buckner.

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## Quarterly Mortality Reports

### Continued investigation of Newcastle Disease Virus in Cormorants in the Midwest

Newcastle Disease (ND) is a reportable disease in poultry and was last detected in U.S. poultry flocks in California in 2003. However, ND continues to cause mortality events in wild birds, particularly double-crested cormorants (*Phalacrocorax auritus*) (DCCO). The frequency of DCCO mortality events caused by Newcastle Disease virus (NDV) appears to be increasing in the Midwest with almost annual occurrence of NDV-associated mortality in DCCO in the Midwest since 2006 compared to the 11-year period between the first documented events in 1992 and second detection in 2003. Due to the apparent increase in frequency of NDV mortality events, scientists at the National Wildlife Health Center (NWHC) began a collaborative study to investigate the transmission dynamics of NDV in DCCO in 2012. Partners included in this project include the U.S. Department of Agriculture-Wildlife Services, Minnesota Department of Natural Resources, U.S. Fish and Wildlife Service, and the Leech Lake Band of Ojibwa.

The study is focused primarily on determining the role of maternal antibodies in transmission of NDV. During 2012 over 1,000 adult and juvenile DCCO at several breeding colonies in Minnesota and Wisconsin were sampled for NDV. A NDV epizootic occurred on one of the study sites in 2012 giving scientists the opportunity to compare serology and virus isolation results at NDV outbreak and non-outbreak sites within the same year. Scientists on the project also assisted in the MN DNR's 2012 effort to control spread of this disease by performing carcass collection and incineration at several of the NDV outbreak sites in MN. During 2013 scientists will be focusing on DCCO breeding colonies in Minnesota where they again plan to collect over 1,000 samples from DCCO of various age classes. Understanding the role of maternal antibodies in the transmission dynamics of ND may help scientists predict future epizootic events in DCCO and develop disease management strategies. Contact: LeAnn White, National Wildlife Health Center, 608-270-2491, clwhite@usgs.gov

### Investigation of snake fungal disease east of the Mississippi River (United States)

Since 2006, there has been an increase in the number of reports of skin infections in wild snakes in certain parts of the eastern United States. Laboratory testing has implicated a fungal pathogen, *Ophidiomyces ophiodiicola* (formerly *Chrysosporium ophiodiicola*), but the causative agent has not yet been definitively identified. NWHC scientists are collaborating with the U.S. Fish and Wildlife Service, numerous state agencies, organizations, researchers, and other key stakeholders to investigate this potentially emerging disease and to learn more about its impacts on snake populations. For more information, visit [Snake Fungal Disease](#). Contact: Anne Ballmann, National Wildlife Health Center, 608-270-2445, aballmann@usgs.gov

### Suspected famphur poisoning in Raptors (Washington)

One red-tailed hawk (*Buteo jamaicensis*), one great horned owl (*Bubo virginianus*), and eight European starlings (*Sturnus vulgaris*) were submitted to NWHC for necropsy after the

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Washington Department of Fish and Wildlife received reports of >100 moribund and dead starlings and magpies in a backyard residence in eastern Washington. The red-tailed hawks and great horned owl were observed feeding on the carcasses of starlings and magpies between late-January and mid-March, 2013. Other species including house sparrows (*Passer domesticus*), rock doves (*Columba livia*), and waterfowl were abundant in the area and were not affected. One red-tailed hawk was taken to a wildlife rehabilitator and recovered after receiving atropine. Black feathers and one starling leg were recovered from the stomach of the red-tailed hawk and no signs of infectious disease were present at necropsy. Brain cholinesterase activity in the red-tailed hawk, great horned owl and starlings were markedly depressed, indicating they were recently exposed to organophosphate/carbamate pesticide compounds. No toxic organic compounds could be identified in liver tissue of the starlings or red-tailed hawk by mass spectrometry and there were no stomach contents available from the starlings for analysis. Famphur, a regulated pesticide that is highly toxic to birds was identified in the skin tissue of the feet of one starling by mass spectrometry. Contact: Barbara Bodenstein, National Wildlife Health Center, 608-270-2447, [bbodenstein@usgs.gov](mailto:bbodenstein@usgs.gov)

### **Eastern Brown Pelican mortality in Brevard County (Florida)**

Mortality among juvenile and adult eastern brown pelicans (*Pelicanus occidentalis*) concentrated around Merritt Island and Melbourne, Florida began in late February and continued through mid-April 2013, eventually involving approximately 250 pelicans. Concurrent mortality involving other avian, mammalian, and fish species was reported sporadically over the course of this event. Initially, clinical signs in pelicans were suggestive of avian botulism; however, lab tests were negative. All examined birds were emaciated with moderate to marked intestinal parasitism. Birds tested negative for lead exposure and no significant bacteria were cultured. Moderate amounts of metabolites of a chlorinated hydrocarbon insecticide (organochlorines) and several PCB (polychlorinated biphenyls) congeners were detected in at least one pelican but these compounds likely accumulated from the diet and were not the primary cause of death. Avian poxvirus was isolated from skin lesions in another pelican that also had microscopic evidence suggestive of systemic poxvirus infection. Similar lesions were not present in other pelicans examined; therefore, its significance to this mortality event is uncertain. At least eight mortality events involving brown pelicans have been reported in Brevard County since the 1980s; causes of death have been attributed to botulism type C and other suspected toxins, trauma, and undetermined causes. Contact: Anne Ballmann, National Wildlife Health Center, 608-270-2445, [aballmann@usgs.gov](mailto:aballmann@usgs.gov)

### **Manatee mortality on the western coast of Florida**

Toxic red tide caused by *Karenina brevis* is estimated to have killed 267 West Indian manatee (*Trichechus manatus* ssp. *latirostris*), a Florida subspecies, along the western coast of Florida between January and April 2013. These deaths were investigated by the Marine Mammal Pathobiology Laboratory (Florida Fish & Wildlife Conservation Commission). The majority of affected manatees were detected in Lee County although the bloom stretched from Sarasota to Collier Counties. The red tide toxins cause respiratory distress, paralysis, and unresponsiveness in manatee that may become exposed through inhalation of aerosolized toxicant on the water's surface or ingestion of contaminated sea grass. Blooms of red tide typically occur annually in the region but the toxins may remain off-shore depending on the prevailing winds and water currents. This year is on track to be one of the worst for manatee mortality; 633 animals have already been reported dead (as of 6/7/13) which exceeds totals from the previous two years. Other common causes of manatee mortality include watercraft collisions, cold stress, perinatal mortality, and other natural or undetermined causes. The Florida manatee is endangered; only about 5,000 are thought to remain in the wild. Contact: Anne Ballmann, National Wildlife Health Center, 608-270-2445, [aballmann@usgs.gov](mailto:aballmann@usgs.gov)

### **White-nose syndrome Winter 2012/2013 summary**

White-nose syndrome (WNS) was confirmed in cave-hibernating bats in three new states

(South Carolina, Georgia, and Illinois) and one new province (Prince Edward Island) during the 2012/2013 winter season, as previously reported in the mid-winter update. This represents a continued expansion of *Geomyces destructans* distribution on the landscape and thus far evidence of geographic barriers preventing its spread is lacking. White-nose syndrome is now confirmed in 22 states and 5 Canadian provinces since it was first recognized near Albany, New York in 2007. Numerous additional counties throughout Tennessee, Kentucky, and Ohio had confirmed cases of WNS this winter indicating that the disease is now endemic in these states within two years of its initial detection in those areas. Sites in several northeastern states where WNS has been present the longest continue to be occupied by bats although in much lower numbers. Other states report a surge in total winter bat counts at some sites either concurrent with the first year of detection of WNS or in the preceding winter. It is unclear if this surge represents immigrants from other sites and/or a shift in roosting location of the local bat population from unsurveyed portions of the hibernaculum. Winter hibernacula survey data are being reviewed by state and federal management agencies to better understand the on-going impacts of WNS on bat populations in affected regions. Also of note, *G. destructans* DNA has been detected on endangered Virginia big-eared bats (*Corynorhinus townsendii virginianus*) hibernating in at least one known contaminated site; no mortality or visible signs of disease are reported in this species at this time.

For the latest WNS updates, consult [NWHC Wildlife Health Bulletins](#). Current NWHC bat submission guidelines are available [here](#). Contact: Anne Ballmann, National Wildlife Health Center, 608-270-2445, [aballmann@usgs.gov](mailto:aballmann@usgs.gov)



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### USGS National Wildlife Health Center Quarterly Wildlife Mortality Report July 2013 to September 2013

Reported State	Location	Dates <sup>A</sup>	Species	Mortality <sub>B</sub>	Diagnosis <sup>C</sup>	Laboratory <sub>D</sub>
AK	Kenai Peninsula	08/31/13 - 09/18/13	Black-legged Kittiwake, Marbled Murrelet	19 (e)	Emaciation	NW
AZ	Chandler	07/20/13 - 08/28/13	Mallard, Domestic Duck	10	Botulism type C	NW
AZ	Mesa	08/17/13 - 09/04/13	Rosey-faced (Peach-faced) Lovebird	18 (e)	Chlamydiosis	NW
AZ	Paradise Valley	07/01/13 - 08/30/13	Eurasian Collared Dove	50 (e)	Viral Infection: Avian Paramyxovirus 1	NW
AZ	Yuma County	09/01/13 -****	Eurasian Collared Dove, White-winged Dove, Mourning Dove	200 (e)	Viral Infection: Avian Paramyxovirus 1 suspect	NW
CA	Carmel River	07/10/13 - 08/28/13	California Red-legged Frog	14	Fungal Infection: chytrid	NW
CA	Sonny Bono Salton Sea NWR	07/22/13 - 08/19/13	California Brown Pelican	29	Emaciation	NW
CA	Tulelake NWR	07/15/13 - 10/01/13	Mallard, White-faced Ibis, Green-winged Teal, Northern Pintail,	7000 (e)	Botulism type C	NW

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			Western Grebe			
DE	Lewes	07/12/13 - 07/12/13	Mallard	6	Botulism type C	NW
DE	Sussex County	07/30/13 - 08/19/13	Laughing Gull	150 (e)	Salmonellosis	NW
IA	Clinton County	07/06/13 - 07/14/13	Little Brown Bat	12 (e)	Trauma suspect	NW
ID	Fort Boise WMA	08/01/13 - 09/30/13	Unidentified Grebe, Unidentified Teal, Mallard	600 (e)	Botulism type C	NW
ID	Snake River	07/02/13 - 07/02/13	Little Brown Bat	18	Undetermined	ID, NW
IL	Thomson	07/28/13 - 08/02/13	Little Brown Bat	16	Trauma	NW
IN	Loogootee	07/27/13 - 08/02/13	Red Bat	15 (e)	Trauma: impact	NW
LA	Alexandria	07/25/13 - 07/25/13	Purple Martin	10 (e)	Trauma: powerline collision	SCW
LA	Harahan	08/05/13 - 08/05/13	Laughing Gull	13	Hepatic necrosis	SCW
ME	Orono	07/28/13 - 08/15/13	Spotted Salamander, Salamander	300 (e)	Viral Infection: Ranavirus suspect	NW
MI	Naubinway	07/10/13 - 07/20/13	Canada Goose	7	Undetermined	MI
MI	Portage Point	07/10/13 - 07/20/13	Canada Goose, Mute Swan	5 (e)	Undetermined	MI
MI	St. Mary's River	08/01/13 - 08/05/13	Unidentified Gull	200 (e)	Undetermined	MI
MN	Blue Earth County	08/20/13 - 08/21/13	Little Brown Bat	11	Emaciation	NW
MT	Belgrade		Common Grackle	30 (e)	Trauma	NW

		09/03/13 - 09/04/13				
MT	Big Sag WPA	08/23/13 - 09/15/13	Unidentified Waterfowl, Eared Grebe, Unidentified Duck, Green-winged Teal, Northern Shoveler	18	Toxicosis: blue-green algae suspect	NW
MT	Bowdoin NWR	08/25/13 - 09/30/13	American White Pelican, Eared Grebe, Blue-winged Teal, American Coot, Gadwall	300 (e)	Botulism type C	NW
MT	Chouteau County	07/22/13 - 08/02/13	Unidentified Bat	50 (e)	Undetermined	NON
MT	Medicine Lake NWR	07/05/13 - 08/12/13	American White Pelican	100 (e)	Viral Infection: West Nile	NW
MT	Medicine Lake NWR	08/22/13 - 09/11/13	Ring-billed Gull, American White Pelican, Gadwall, California Gull, Sanderling	100 (e)	Botulism type C	NW
NC	Cary	07/07/13 - 07/19/13	Brazilian Free-tailed Bat	24	Trauma	SCW
ND	Oakes	09/06/13 - 09/06/13	Rose-breasted Grosbeak	20 (e)	Open	NW
ND	Lake Sakakawea	07/15/13 - 08/09/13	Piping Plover, American White Pelican, Unidentified Shorebird,	45 (e)	Botulism type C	NW

			Unidentified Gull			
NJ	Cranford	07/01/13 - 07/18/13	American Robin	25 (e)	<u>Toxicosis: pesticide</u>	SCW
NM	Mora County	08/27/13 - 08/27/13	Elk	100 (e)	Toxicosis: blue-green algae	
NV	Las Vegas	07/04/13 - 09/01/13	Mallard, Unidentified Turtle, Domestic Duck	100 (e)	Botulism suspect	NW
NV	Las Vegas	07/12/13 - 08/07/13	Mallard, Herring Gull	47	Botulism type C	NW
NY	Woodstock	07/11/13 - 07/14/13	Spotted Salamander, Wood Frog	5 (e)	Viral Infection: Ranavirus	NW, NY
OH	Dublin	08/13/13 - 08/15/13	Mallard	9	Botulism type C	NW
OR	Willamette River	09/30/13 - 10/03/13	Unidentified Swallow, Violet-Green Swallow, Barn Swallow, Tree Swallow, Vaux's Swift	1350 (e)	Starvation	OR
OR	Smith and Bybee Lakes,	09/08/13 - 10/01/13	Unidentified Teal, Portland, Northern Shoveler, Mallard	300 (e)	Botulism type C	NW, UPA
PA	Bensalem	07/01/13 - 08/08/13	American Robin, American Crow, Unidentified Bat, Unidentified Passerin	10 (e)	Undetermined	NW
PA	Franklin	08/03/13 - 08/03/13	Common Grackle, House Finch, Mourning Dove, Barn	73	Trauma: gunshot	SCW

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			Swallow, Red-winged Blackbird			
PA	Lancaster	07/26/13 - 09/18/13	Mallard, Unidentified Duck, Common Carp	35 (e)	Undetermined	NW
TN	Nashville	08/07/13 - 08/07/13	House Finch	5 (e)	Undetermined	SCW
TX	Perryton	08/08/13 - 08/10/13	House Sparrow	197	Open	NW
TX	Lubbock	09/01/13 -ongoing	Eurasian Collared Dove	200 (e)	Viral Infection: Avian Paramyxovirus 1	NW
TX	Midland	07/12/13 - 10/09/13	White- winged Dove	18	Toxicosis: strychnine	NW
UT	Great Salt Lake	07/03/13 - 08/26/13	California Gull, White- faced Ibis, Gadwall, Mallard, American Avocet	865 (e)	Botulism type C	NW
WA	Port of Vancouver	09/30/13 - 12/12/13	Ring-necked Duck, Northern Shoveler, Unidentified Scaup, American Coot, American Wigeon	95 (e)	Botulism type C	NW
WA	Anacortes	07/22/13 - 08/21/13	Canada Goose	5	Emaciation: parasitism	NW
WY	Goshen County	08/14/13 - 09/16/13	Ring-necked Pheasant	331	Botulism type C	NW, WY
US	Atlantic Coast New York - Florida	07/01/13 -ongoing	Bottlenose Dolphin	996	Viral Infection: Morbillivirus	NOA
<b>Updates and Corrections:</b>						
<b>Reported State</b>	<b>Location</b>	<b>Dates <sup>A</sup></b>	<b>Species</b>	<b>Mortality <sub>B</sub></b>	<b>Diagnosis <sup>C</sup></b>	<b>Laboratory <sub>D</sub></b>

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NJ	Berkshire Valley Wildlife Management Area	06/01/13 - 06/05/13	Wood Frog	50000 (e)	Viral Infection: Ranavirus suspect	NW
NJ	Blairstown	06/16/13 - 06/19/13	Wood Frog	200 (e)	Undetermined	NW
NY	Multiple Towns	01/28/13 - 04/24/13	Common Redpoll	50 (e)	Salmonellosis (S. typhimurium)	COR, NY
WA	Intalco Aluminum Plant	01/29/13 - 01/29/13	River Otter	7	Undetermined	OT, WA
US	Multiple Counties in North Carolina and Virginia	03/19/13 - 06/04/13	Common Loon, Razorbill, Dovekie, Horned Grebe, Greater Shearwater	130 (e)	Emaciation	NW, SCW

<sup>A</sup> \*\*\*\* = cessation date not available.

<sup>B</sup> (e) = estimate, \*\*\* = mortality estimate not available.

<sup>C</sup> Suspect = diagnosis is not finalized or completed tests were unable to confirm the diagnosis, but field signs and historic patterns indicate the disease; Open = diagnosis is not finalized and tests are on-going; Undetermined = testing is complete or was not pursued and no cause of death was evident; NOS = not otherwise specified.

<sup>D</sup> Cornell University (COR), Idaho Wildlife Health Laboratory, Boise (ID), Michigan Department of Natural Resources (MI), National Oceanic & Atmospheric Administration (NOA), National Wildlife Health Center (NW), New Hampshire Veterinary Diagnostic Laboratory (NH), No diagnostics pursued (NON), New York State Department of Environmental Conservation, Division of Fish, Wildlife & Marine Resources (NY), Oregon State Diagnostic Laboratory (OR), Other (OT), Southeastern Cooperative Wildlife Disease Study (SCW), Tufts University, Massachusetts (TU), University of Pennsylvania (UPA), Washington Animal Disease Diagnostic Laboratory (WA), Wyoming State Veterinary Laboratory (WY).

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## Quarterly Mortality Reports

### Morbillivirus outbreak in Atlantic bottlenose dolphins

The National Oceanic and Atmospheric Administration (NOAA) and collaborating scientists have identified dolphin morbillivirus (Family Paramyxoviridae) as the cause of a mass die-off of Atlantic bottlenose dolphins (*Tursiops truncatus*). Mortality began in early July 2013 along coastal New York and gradually reached as far south as Brevard County, Florida. Mortality is ongoing and to date (December 15, 2013), 996 dolphins have died, which is more than eight times the expected mortality for this species along the Atlantic Coast. All age classes have been involved with the majority of animals washing ashore dead or dying shortly after stranding with lesions on the skin, mouth, joints or lungs. Four distinct populations of bottlenose dolphins occur along the United States Atlantic Coast with some overlap of seasonal range; it remains under investigation whether individuals from one or more of these populations are affected, although morbillivirus has been confirmed or suspected in dead dolphins tested from New York to Florida. Population impacts from the current mortality event are not yet known; however, a previous morbillivirus epizootic event (1987-1988) involving Atlantic bottlenose dolphins resulted in an estimated 50% reduction of coastal migratory populations. Testing for this virus is underway in other cetacean species that have sporadically stranded and/or died within the affected area during this same period. The bacterium *Brucella* sp. has also been detected in a small number of dolphins from this die-off. It is unclear if this infection may be contributing to the debilitation of some animals. For more information on this investigation, visit <http://www.nmfs.noaa.gov/pr/health/mmume/midatltdolphins2013.html> Contact: Anne Ballmann, USGS National Wildlife Health Center, 608-270-2445, aballmann@usgs.gov

### Dove mortalities in Texas

Biologists at Texas Parks and Wildlife Department received multiple reports of dove mortality events from several counties (e.g., Midland, Ector, Lubbock, Harris) in Texas beginning in September 2013. Over 1,000 doves were estimated to have died at various locations across the state over a couple of months. The majority of early mortality reports involved white-winged doves (*Zenaidura macroura*) but later reports also included several hundred dead Eurasian collared doves (*Streptopelia decaocto*). Several white-winged doves, Eurasian collared doves, and a single Inca dove (*Columbina inca*) were submitted to the USGS National Wildlife Health Center for diagnostic evaluation. Pigeon paramyxovirus (PPMV) was detected in the Eurasian collared doves, which is the second year in a row that this virus has been detected in this species in northwestern Texas (Midland County 2012, Lubbock County 2013). PPMV is a member of the Avian paramyxovirus-1 group of viruses (group of viruses to which Newcastle Disease virus also belongs) and some strains can be virulent to poultry. PPMV outbreaks in Eurasian collared doves have been previously documented in Florida, Arizona, and Montana. PPMV was not detected in the other examined doves species from northwestern Texas in 2012 or 2013. The major finding for white-winged doves submitted from Midland County in 2013 was poisoning with strychnine and the cause of death for the

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single submitted Inca dove is still under investigation. Contact: LeAnn White, USGS National Wildlife Health Center, 608-270-2491, clwhite@usgs.gov